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EFFECT OF ORTHOSIPHON STAMINEOUS BENTH ON THE CARDIOVASCULAR SYSTEM

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Our previous studies demonstrated that Orthosiphon stamineous Benth administered to dogs exerts a diuretic effect, increases the elimination of chlorides and urea, and also accelerates the elimination of indigo carmine with the urine. It was established by means of the creatinine method that the diuretic effect of Orthosiphon stamineus /O.s./ is caused to a large extent by the increase of glomerular filtration and to a lesser degree by the diminution of canalcular reabsorption.

It is known from the literature (Ye. Yu. Shass, 1951, 1953, 1954; A. D. Turova, G. V. Buzaladze, 1953, M. M. Molodozhnikov, M. N. Chukocheva, A. N. Vasina, 1955) that O.s. is employed not only in renal edema but in edema of cardiac origin as well, in particular in second and third degree decompensation.

In connection with the absence in the literature of references to the effect of O.s. on the cardiovascular system, we conducted the following investigation. We studied the effect of O.s. on a cat's heart in situ, and on the arterial blood pressure in dogs according to the Ludwig method with a simultaneous ECG recording, and on the vessels of a rabbit's isolated ear by the Kravkov-Pisemskiy method.

There were 26 experiments carried out on a cat's heart in situ. Intravenous administration of one and five percent infusions of O.s. in a one ml/kg dose showed that there was no substantial difference in the intensity and character of the effect of these infusions on cardiovascular activity. Following a brief diminution of the amplitude of cardiac contractions by three to 26 percent, there was an

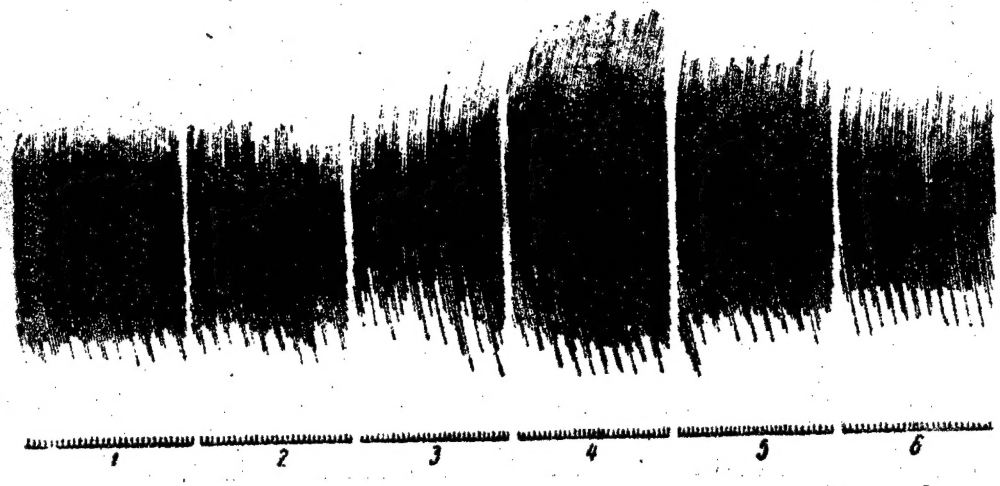

Fig. Effect of one percent O.s. infusion in intravenous administration of one ml/kg dose on the cat's heart in situ.
Annotations from left to right;
1-- norm; 2-- during the administration of the infusion; 3-- one minute after administration; 4-- after three minutes; 5-- after five minutes; 6-- after 40 minutes. Annotation of time -- one second.

increase observed in most instances. In some of the experiments, after five to 10 minutes, sometimes after one to two hours following administration of the infusion, there was observed a restitution of the amplitude of cardiac contractions to the initial level (see Figure).

The effect of the infusion on arterial pressure was studied on 28 dogs. Intravenous administration of O.s. infusion in a 1:100 concentration was at first accompanied by a brief increase of arterial pressure of four to 22 mm, following which it increased by 11 to 82 mm. A 5:100 infusion caused lowering of pressure by six to 58 mm of mercury column. The hypotensive effect of O.s. lasted from a few seconds to one to two hours. Subsequent changes of arterial pressure were not uniform. In some experiments the arterial pressure reverted to the initial level, in others it increased somewhat (by three to 17 mm), or remained unchanged.

Five to 50 minutes after the administration of

O.s. infusion, the arterial pressure rose in the majority of experiments by eight to 55 mm.

In some experiments, simultaneously with arterial pressure recording, an ECG was taken (apparatus EKP-4) in the second standard lead. Its data showed that O.s., while not affecting the character and voltage of the waves, somewhat accelerated the atrioventricular and intraventricular conductivity, by shortening the PQ intervals 3.8 to 27.5 percent, QRS by 3.5 -- 19.4 percent and QT by 4 -- 13 percent.

The O.s. infusion in a dilution of 1:100 had no effect on the vessels of an isolated rabbit's ear.

On the basis of the above-stated we arrived at the conclusion that: 1) O.s. increases the amplitude of cardiac contractions in cats; 2) According to ECG data, O.s. somewhat accelerates atrioventricular and intraventricular conductivity, as well as the entire ventricular complex by shortening the PQ, QRS and QT intervals.

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